

Patent claims

1. A method to implement transmission diversity in a radio system, particularly in a mobile communications system that comprises at least one receiving unit (MS) and at least one transmitting unit (BTS), in which radio system the receiving unit and transmitting unit set up a data transmission connection over a radio path, the said method comprising

- transmission of the signal to the receiving unit using the preferred diversity option,

- monitoring of the received signal by the receiving unit for quality

- sending of feedback data from the receiving unit to the transmitting unit based on the said monitoring, and

- selection of the diversity option in response to the feedback data, which is used for sending the signal at any given time,

characterized in that the feedback data consists of the power control messages sent by the receiving unit that are used as a basis for selecting the transmission diversity option to be used .

2. A method in accordance with patent claim 1, characterized in that the transmitting unit filters the data required for the selection of the transmission diversity option from the power control message.

3. A method in accordance with patent claim 2, characterized in that that filtering is carried out by counting the number of certain type of power control messages from a sliding window comprising of the preferred number of successive power control messages.

4. A method in accordance with patent claim 2, characterized in that filtering is carried out by means of a table that includes all the possible variations of the power control message strings contained in the sliding window.

5. A method in accordance with patent claim 1, characterized in that the transmitting unit continuously counts the number of certain type of incoming successive power control messages, and when the said number reaches a certain predefined value, a decision is made on the diversity option to be used and whenever a different type of power control message is received, the count is reset.

6. An arrangement for implementing transmission diversity in a radio system, particularly in a mobile communications system that comprises

05842450-042501
105240-05424860

at least one receiving unit (MS) and at least one transmitting unit (BTS), in which radio system the receiving unit and transmitting unit set up a data transmission connection over a radio path, the said arrangement incorporating

5 - measuring elements on the receiving unit to measure the properties of the signal to be received

 - feedback elements to transmit the transmission diversity data to the transmitting unit based on the said measurement, and

10 - switching elements to select the preferred transmission diversity option

 c h a r a c t e r i z e d in that the feedback elements contain elements that the receiving unit uses to send power control messages to the transmitting unit, and that the transmitting unit contains control elements that are functionally connected to control the switching elements in response to
15 the power control messages received.

7. An arrangement in accordance with patent claim 6, characterized in that the control elements contain filtering elements for filtering the power control messages.

20 8. An arrangement in accordance with patent claim 7, characterized in that the filter uses a sliding window in such a way that only a certain type of power control message strings are responded to.

9. An arrangement in accordance with patent claim 7, characterized in that the filter uses the sliding window in such a way that only a certain type of power control message string is responded to.

25 10. An arrangement in accordance with patent claim 6, characterized in that the control elements contain a counter that counts the number of certain type of successive power control messages.

0042490-042501